Before the

Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Preserving the Open Internet	)	GN Docket No. 09-191
	)	
Broadband Industry Practices	)	WC Docket No. 07-52

COMMENTS OF GEORGE OU,
POLICY DIRECTOR WITH DIGITAL SOCIETY

Introduction

The Federal Communications Commission (FCC) released a Notice of Proposed Rulemaking on October 22, 2009 (NPRM) requesting comments with regard to preserving the Open Internet. While Digital Society believes in reasonable oversight to ensure an open and fair Internet, we are concerned that some aspects of the NPRM, if implemented, could have dire consequences for businesses and consumers.

It is the intent of this filling to provide guidance to the FCC on four specific accounts:

- The danger of unrealistic minimum service requirements
- Why intelligent networks are crucial to truly neutral networks
- Wireless networks shouldn't be regulated like wired networks
- Preserving flexible Internet interconnection models

The danger of unrealistic minimum service requirements

One of the reasons for the Internet's success is that it is hospitable to a wide variety of networking technologies and a wide variety of service plans so that broadband consumers can find something that is most suited and affordable to them. But the new NPRM regulations seem to be setting minimum service guidelines that will eliminate many of the cheaper service plans that the majority of Internet customers want. This rush to change the existing Internet economy in the name of "preserving" the Internet is misguided and it will slow Internet adoption which runs counter to the goal of a robust technology policy.

One example is consumer versus business class wired broadband service which has historically been differentiated by price and capability. Broadband has always been and continues to be designed and optimized for content consumption and not so much for content distribution because that's what the majority of customers want. As a result, the cheaper consumer plans are restricted by Terms of Service (ToS) and/or technical means such as the lack of a static Internet Protocol (IP) address. The NPRM as it is currently proposed makes subtle but significant changes in the first four principles which threaten to eliminate these differences between consumer and business class broadband. That will inevitably lead to the elimination of cheaper service plans and slow Internet adoption[1].

Another example is mobile Internet services which have an even wider array of price and capability. The majority of consumer oriented Internet-capable Smartphones restrict the attachment of laptops that get Internet access via the Smartphone (a process called tethering), but they get mobile Internet access at half price. This is especially attractive to customers who don't have the need for mobile laptop connectivity or those who don't even own a laptop. Other business-oriented Smartphones that do allow the tethering of laptops are priced at the full rate of mobile Internet plans intended for laptops which statistically consume many times more data than Smartphones. The NPRM threatens to eliminate these cheaper no-tethering mobile Internet service plans, and that will penalize the majority of customers who don't use laptops and reduce mobile Internet adoption.

Another major concern is the specialized mobile Internet connections like the Amazon Kindle e-book reader. As the NPRM currently stands, the Kindle model of Internet connectivity seems to violate the first three principles of the NPRM because Internet access on the Kindle is limited to the applications and content that Amazon approves of. The limits of course are perfectly justifiable given the fact that Kindle users get free wireless Internet connectivity because Amazon pays for the connection, but the NPRM's more restrictive first four principles no longer allow for reasonable limits. By making perfect the enemy of good, we will inadvertently slow technology innovation in the United States.

Why intelligent networks are crucial to truly neutral networks

We all like the concept of a "neutral" network because we define neutral as fair and just, but the search for true neutrality seems to have been lost in the search for "Network Neutrality". The noble search for true neutrality has been replaced by an unrelenting desire to neuter the core network while empowering only the end points based on a misunderstanding of the architecture of the Internet[2].

Proponents of “Net Neutrality” Internet regulation make the unfortunate assumption that fairness and neutrality stems from a dumb and unmanaged network. They argue that the only way to achieve neutrality is to treat users and applications on a first come first serve basis which network engineers call First In First Out (FIFO). Groups like Public Knowledge have even written papers espousing the virtues of a FIFO network and the dangers of intelligent networks, but the authors of that paper erred in all of their major assertions about how network engineering works[3]. The result of this misguided thinking is that the NPRM in its current form would ban good network management practices in the name of stopping potential ISP abuses[4]. But we can easily detect and stop any potential abuse through technical means without completely outlawing prioritized network access for the applications that need it, and FCC OET Chief Julius Knapp rightfully pointed out that there are applications with special requirements[5].

The reality is that we know from real life that first come first serve is only fair when everyone makes the same demands and everyone has the same etiquette. If we were sharing food between a group of people who all paid an equitable share of the bill, we can’t assume that everyone will be fed and that no one will starve under an unmanaged system. Fairness breaks down as soon as one person aggressively grabs up a disproportionate share of food. In the networking world, some applications can grab tens or even hundreds of times more network resources than other applications and prevent other applications from working correctly. An intelligent network can ensure fair distribution of bandwidth and achieve true neutrality[6].

One of the ironies of this is that the current NPRM rightfully permits favored treatment of “managed services” that the ISP operates, but doesn’t allow the ISP to favor Internet applications that may compete with the ISP’s own managed services. For example, ISPs could continue prioritizing their own Voice over IP (VoIP) services but they wouldn’t be allowed to prioritize VoIP services from independent telephony providers like Vonage or Skype which compete with the ISP’s VoIP service. Skype’s Chief Technology Strategist Jonathan Roenberg pointed out that every bit of prioritization helps especially in the broadband networks[7]. ISPs like Cox Communications has already indicated that it will prioritize all VoIP applications including Vonage and Skype, and it is actually helping its telephony competitors who are competing for Cox’s Digital Voice telephony customers. How can it be good policy for the NPRM to stop ISPs like Cox from helping their competitors by offering better third party VoIP service to their customers?

Wireless networks shouldn’t be regulated like wired networks

Recently assertions have been made that Net Neutrality regulations should be no different whether wired or wireless. However, it has been pointed out by David Farber[8] that the differences in between wireless and wired networks are huge and that these fundamental differences have been place since the creation of the Internet[9]. Digital Society has also documented the vast number of differences between wired and wireless networks and why they are nothing alike[10].

Aside from the technical differences, companies like AT&T nearly paid three times more per MHz of spectrum for unencumbered spectrum than Verizon which bought much cheaper spectrum with the understanding that it had to operate under "open" Net Neutrality rules. For the FCC to come back one

year later after the auction and declare all wireless spectrum to be under Net Neutrality rules raises legal and ethical questions. Would the FCC return the billions of dollars in price premium that AT&T paid if the unencumbered spectrum they purchased were encumbered with open access regulations?

Preserving flexible Internet interconnection models

The Internet is a lot more complex than what the current debate within the NPRM suggests. Paragraph 106 of the NPRM goes beyond stopping discrimination by prohibiting all forms of "enhanced and prioritized" services that a broadband provider might offer a Content, Application, or Service (CAS) provider. It simply declares any form of enhancement or prioritization to be illegal forms of "discrimination" and that eliminates too many legitimate forms of Internet interconnection.

The motivation for these hard line rules seem to come from the misguided notion that ISPs charging CAS providers for access to Broadband customers is always a bad and harmful. These ideas come from groups that claim to "preserve" the Internet when they are actually trying to change the status quo and outlaw existing business models.

The "Free to Invest: The Economic Benefits of Preserving Net Neutrality[11]" paper from the Institute for Policy Integrity of the New York University School of Law is an example of this kind of flawed thinking. The paper is based on a false premise that without Net Neutrality, ISPs can essentially extort money from CAS providers by charging them in addition to what they've already paid the on-ramp Internet transit providers by threatening to block or degrade their traffic. What the Free to Invest paper missed is that once a CAS provider pays the ISP for direct peering, they no longer need to pay for the more expensive transit on-ramps they were using before. So the Free to Invest paper wrongly concluded that Net Neutrality regulation decreases costs for CAS providers when in fact it raises their prices by reducing their options. A more detailed discussion was published in an article "Net Neutrality economic study based on flawed analysis"[12] and submitted as a separate NPRM filing under the same title.

A far more detailed analysis that looked at seven different types of Internet connectivity was published in an article "Preserving the open and competitive bandwidth market"[13] and also submitted as a separate NPRM filing under the same title. We hope the FCC will fully examine and understand these Internet connectivity models before they institute new blanket prohibition regulations that automatically dismiss them.

Conclusion

Digital Society encourages the FCC to prevent genuinely anti-competitive behavior and intervene in cases of harm or fraud. We realize that the debate is very complex, but it is crucial that we get the facts and details right and that policies be based on sound economics and engineering.

---

[1] George Ou, "Changes to FCC Four Principles could ban existing services", Digital Society, October 26, 2009, http://www.digitalsociety.org/2009/10/changes-to-fcc-four-principles-could-ban-existing-services/

[2] Richard Bennett, ITIF, "Designed for Change: End-to-End Arguments, Internet Innovation, and the Net Neutrality Debate" (September 2009), http://www.itif.org/files/2009-designed-for-change.pdf

[3] George Ou, "*Debunking the Myth that Prioritized Networks Are Harmful*", Digital Society, November 12, 2009, http://www.digitalsociety.org/2009/11/debunking-the-myth-that-prioritized-networks-are-harmful.
[4] George Ou" FCC NPRM prohibits good network management, Digital Society, November 3, 2009, http://www.digitalsociety.org/2009/11/fcc-nprm-prohibits-good-network-management/
[5] George Ou, "Knapp is right, there are apps with special requirements, Digital Society, November 6, 2009, http://www.digitalsociety.org/2009/11/fcc-nprm-prohibits-good-network-management/
[6] For a detailed examination of these points, please see: Ou, *What Is True Neutrality in the Network*, Digital Society, November 22, 2009, http://www.digitalsociety.org/2009/11/what-is-true-neutrality-in-the-network.
[7] George Ou, FCC Technical Advisory Process Workshop QoS discussion, Digital Society, December 11, 2009, http://www.digitalsociety.org/2009/12/fcc-technical-advisory-process-workshop-qos-discussion/
[8] Ou, *David Farber Explains Why Internet Regulation Is Misguided*, Digital Society, November 9, 2009, http://www.digitalsociety.org/2009/11/david-farber-explains-why-internet-regulation-is-misguided.
[9] A detailed list of fundamental differences between wired and wireless networks can be found here: Ou, *The Problem With Wireless Net Neutrality*, Digital Society, November 24, 2009, http://www.digitalsociety.org/2009/11/the-problem-with-wireless-net-neutrality.
[10] George Ou, The problem with wireless Net Neutrality, Digital Society, November 24, 2009, http://www.digitalsociety.org/2009/11/the-problem-with-wireless-net-neutrality/
[11]Inimai M. Chettiar, J. Scott Holladay, "Free to Invest: The Economic Benefits of Preserving Net Neutrality", Institute for Policy Integrity – New York University School of Law, http://policyintegrity.org/documents/Free_to_Invest.pdf
[12] George Ou, Net Neutrality economic study based on flawed analysis, Digital Society, January 14, 2010, http://www.digitalsociety.org/2010/01/net-neutrality-economic-study-based-on-flawed-analysis/
[13] George Ou, "Preserving the open and competitive bandwidth market", Digital Society, January 14, 2010, http://www.digitalsociety.org/2010/01/preserving-the-open-and-competitive-bandwidth-market/